

THE MILITARY RESPONSE TO PANDEMIC: THE NEW GLOBAL THREAT

BY

COLONEL PIETRO TORNABENE
Italian Army

DISTRIBUTION STATEMENT A:

Approved for Public Release.
Distribution is Unlimited.

USAWC CLASS OF 2009

Only a work of the United States Government is not subject to copyright. Based upon the nature of a particular student-author's employment, a paper may not be a work of the United States Government and may, in fact, be protected by copyright.

This SRP is submitted in partial fulfillment of the requirements of the Master of Strategic Studies Degree. The views expressed in this student academic research paper are those of the author and do not reflect the official policy or position of the Department of the Army, Department of Defense, or the U.S. Government.



U.S. Army War College, Carlisle Barracks, PA 17013-5050

The U.S. Army War College is accredited by the Commission on Higher Education of the Middle State Association of Colleges and Schools, 3624 Market Street, Philadelphia, PA 19104, (215) 662-5606. The Commission on Higher Education is an institutional accrediting agency recognized by the U.S. Secretary of Education and the Council for Higher Education Accreditation.

REPORT DOCUMENTATION PAGE				Form Approved OMB No. 0704-0188	
<p>Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.</p>					
1. REPORT DATE (DD-MM-YYYY) 28-01-2009	2. REPORT TYPE Strategy Research Paper	3. DATES COVERED (From - To)			
4. TITLE AND SUBTITLE The Military Response to Pandemic: The New Global Threat				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) Colonel Pietro Tornabene, International Fellow - Italy				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Colonel Roberto Nang Department of Command, Leadership, and Management				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Army War College 122 Forbes Avenue Carlisle, PA 17013				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION / AVAILABILITY STATEMENT DISTRIBUTION A: UNLIMITED					
13. SUPPLEMENTARY NOTES Only a work of the United States Government is not subject to copyright. Based upon the nature of a particular student-author's employment, a paper may not be a work of the United States Government and may, in fact, be protected by copyright.					
14. ABSTRACT The more we develop, the more people gather in enormous urban conglomerates, the more we become intertwined in a complex society characterized by large availability of means of transportation, and the more the disruptive effects of a global plague stemming from an unknown infection will be. It is necessary to address this new type of menace in order to know the enemy we face, and once known, find feasible, acceptable, and suitable course of actions to defeat it or, at least, minimize the undesirable effects to our complex society. To fight this kind of "war" is not only the duty of a few researchers or doctors. The Army, as the ultimate bulwark between order and chaos when a threat becomes disruptive for the entire society, has a big role to play in order to assure order, deliver goods and medicines, control the stream of infected people, and maintain open vital communication's routes. The threat of pandemic does not find place in the "The Spectrum of Conflict," and requires new tasks to be accomplished by the Armed Forces. This paper has been developed to address this kind of problem.					
15. SUBJECT TERMS Influenza, Microbes, Menace, Army, Training, Preparedness					
16. SECURITY CLASSIFICATION OF: a. REPORT UNCLASSIFIED			17. LIMITATION OF ABSTRACT UNLIMITED	18. NUMBER OF PAGES 27	19a. NAME OF RESPONSIBLE PERSON
b. ABSTRACT UNCLASSIFIED					19b. TELEPHONE NUMBER (include area code)
Standard Form 298 (Rev. 8-98) Prescribed by ANSI Std. Z39-18					

USAWC STRATEGY RESEARCH PROJECT

THE MILITARY RESPONSE TO PANDEMIC: THE NEW GLOBAL THREAT

by

Colonel Pietro Tornabene
Italian Army

Colonel Roberto Nang
Project Adviser

This SRP is submitted in partial fulfillment of the requirements of the Master of Strategic Studies Degree. The U.S. Army War College is accredited by the Commission on Higher Education of the Middle States Association of Colleges and Schools, 3624 Market Street, Philadelphia, PA 19104, (215) 662-5606. The Commission on Higher Education is an institutional accrediting agency recognized by the U.S. Secretary of Education and the Council for Higher Education Accreditation.

Only a work of the United States Government is not subject to copyright. Based upon the nature of a particular student-author's employment, a paper may not be a work of the United States Government and may, in fact, be protected by copyright.

The views expressed in this student academic research paper are those of the author and do not reflect the official policy or position of the Department of the Army, Department of Defense, or the U.S. Government, the Italian Department of Defense or the Italian Army.

U.S. Army War College
CARLISLE BARRACKS, PENNSYLVANIA 17013

ABSTRACT

AUTHOR: Colonel Pietro Tornabene

TITLE: The Military Response To Pandemic: The New Global Threat

FORMAT: Strategy Research Project

DATE: 28 January 2009 WORD COUNT: 5,510 PAGES: 27

KEY TERMS: Influenza, Microbes, Menace, Army, Training, Preparedness.

CLASSIFICATION: Unclassified

The more we develop, the more people gather in enormous urban conglomerates, the more we become intertwined in a complex society characterized by large availability of means of transportation, and the more the disruptive effects of a global plague stemming from an unknown infection will be. It is necessary to address this new type of menace in order to know the enemy we face, and once known, find feasible, acceptable, and suitable course of actions to defeat it or, at least, minimize the undesirable effects to our complex society. To fight this kind of "war" is not only the duty of a few researchers or doctors. The Army, as the ultimate bulwark between order and chaos when a threat becomes disruptive for the entire society, has a big role to play in order to assure order, deliver goods and medicines, control the stream of infected people, and maintain open vital communication's routes. The threat of pandemic does not find place in the "The Spectrum of Conflict," and requires new tasks to be accomplished by the Armed Forces. This paper has been developed to address this kind of problem.

THE MILITARY RESPONSE TO PANDEMIC: THE NEW GLOBAL THREAT

So the Lord said: 'I will wipe out from the earth the men whom I have created, and not only the men, but also the beasts and the creeping things and birds of the air, for I am sorry that I have made them.'

—Genesis 6, 7¹

In the last years, the appearance of incurable diseases, previously unknown, with disgusting symptoms has called for a reflection on the dangers that seemed buried in history.

Ebola, HIV, SARS, and Avian Flu are scary words that recall the spectrum of incurable diseases. The mind goes to the past diseases that have plagued human societies and it is horrified for the unforeseeable consequences on our complex society. How would we react to a pandemic disease able to kill 10—20 percent of the population? Would society remain intact or would it be disrupted? Who would maintain order? What would be the role of the Armed Forces and the Army in particular?

We are part of the bio-ecological system and even if our science and technological development assure us a clear victory on the invisible enemies of the human body, we cannot escape the limits of the ecosystem,² and the more

...we win, the more we drive infections to the margin of human experience, the more we clear a path for possible catastrophic infection.³

Pandemic diseases have been common in the past and claimed a recurrent heavy toll on the humans. The last pandemic occurred just yesterday, in 1918-1919, called *Spagnola* (Spanish flu), and claimed a staggering number, between 20 to 100 million human lives,⁴ more than the grand total of military and civilian deaths of the entire World War I (about 18.5 million) in four years of fighting.⁵

The future has a name and this name is “globalization”. You can be an enthusiast or a stalwart opponent of it, but it is undisputable that

... the present and future state of globalization will be a major determinant of the shape and nature of world politics, and governmental attitudes to it will in turn be major determinants of strategy and defense policy⁶.

Internet, technology, economy, and social relationships have already integrated the world into a single interwoven organism. As an *organism* the globalized world pays particular attention to its “physiology.” This is clear when an epidemic occurs. The population that faces an epidemic behaves as a single ecological unit and the epidemic, in an ecological sense, acts as a force of natural selection, killing some people with certain genes but sparing people with others. An epidemic, also, links separate populations into a single evolutionary unit. A pandemic is an epidemic that occurs simultaneously in many different parts of the world. From an ecological perspective, a pandemic temporarily connects many, perhaps even all, humans into a single ecological and evolutionary unit.⁷

If it is true, that globalization has forced the international community to rethink the concept of National Interest to include the notion of “Collective Security,” the same is true for the health of the system. Today a health problem in any part of the world can become a problem for the system as a whole. The dramatic increase in worldwide movement of people and goods due to wars, trade, and travel exposes *everyone* to the emerging global threat of infectious diseases. We give to the microbes new homes in tires, tanks, containers, trucks and airplanes that go back and forth to every corner of the world. Furthermore, urbanization and global climate change pose additional problems. In 1900 only five cities in the world had populations larger than one million; by the year 2020, there will be twenty-five megacities with more than twenty million people

and scores of cities with more than a million.⁸ The crowded conditions in urban regions favor the transmission, both directly and indirectly, of pathogenic microbes from person to person. The rise of temperature due to the combustion of fossil fuel and the increasing deforestation, have significantly increased the range in which insect vectors can live and breed. Such climate changes could alter precipitation patterns which could alter vegetation patterns and, in turn, alter the distribution of animal species that are vectors of a wide range of infectious diseases.

In the modern “global village” people, vectors, and microbes, as well as medicines, medical information, and evildoers can travel around the globe with great frequency and ease. The potential for an epidemic of infectious disease that can become a pandemic is real and perhaps unavoidable. Especially influenza has the potential for pandemic spread and leads to intriguing ethical, legal, and organizational questions about public intervention to avoid a situation that could severely disrupt trade, economics, travel, and personal liberty. The nature of the menace is so threatening that it needs to be addressed not only with Public Health interventions but also with all the state’s means including the Military Force.

In this study, we explore the nature of pandemic disease as a menace for the international system. We begin by describing what is a pandemic and the threats it poses to the international system when associated to particular diseases. We briefly expound on the impact of infectious diseases in history, then we Infer what type of “side” consequences can spur the outbreak of a pandemic disease (above all the stigmatization of persons, communities, and ethnic groups). Finally, we identify the possible role of the Armed Forces, and the Army in particular, in facing a pandemic

disease in order to assure order, deliver goods and medicines, control the stream of infected people, and maintain open vital communication's routes.

Pandemic, Endemic and the Influence of Disease in History

A pandemic disease, called also just “pandemic,” is a disease prevalent over a whole area or country.⁹ This is the definition you can find in a dictionary, but is it satisfying? No, because it does not account for an important characteristic that a pandemic disease must possess: to be infectious. It is better to turn to the World Health Organization that identifies three essential prerequisite for the start of a pandemic:

- A novel type of disease must be transmitted to humans;
- The infectious agent must be able to replicate in humans and cause disease;
- The infectious agent must be efficiently transmitted from one human to another; efficient human-to-human transmission is expressed as sustained chains of transmission causing community-wide outbreaks.¹⁰

Following these characteristics, a disease or condition is not a pandemic merely because it is widespread or kills many people; it must also be infectious. Cancer is not a pandemic because, even if it is widespread, it is not infectious.

Moreover, it is necessary to make a distinction between pandemic, epidemic and endemic. The term epidemic refers to any disease that occurs suddenly among people in a particular region,

it affects or tends to affect a disproportionately large number of individuals within a population, community, or region at the same time.¹¹

Conversely, endemic:

Are diseases which exist in particular localities or among certain races. Some diseases, which are at times epidemic over wide districts, have a

restricted area where they are always endemic, and from which they spread.¹²

The adaptation of an infectious agent, that we can call *germ* or *parasite*, and host (a human, animal or, generally speaking, a complex biological entity) goes through stages called epidemic, endemic, and symbiotic. A germ entering a virgin population (i.e. one that is unfamiliar and has few defenses against it) often causes acute disease in people of all ages. The survivors are usually left with improved defenses against reinfection. The disease eventually becomes endemic, a widespread, lower grade infection or routine childhood disease. With further adaption by germ and host comes symbiosis, in which parasite and host sustain mutual tolerance (mutualism) or even mutual benefit (commensalism).¹³ A pandemic is an epidemic that occurs simultaneously in many different parts of the world.

Many diseases have caused pandemics, and in the past humankind has experienced pandemic of smallpox, plague, cholera and others. Most of these diseases came from other species, smallpox probably from dogs and cattle, tuberculosis from cattle and birds, AIDS probably from African monkeys.¹⁴ Today, the most worrying disease able to begin the next pandemic is influenza. The flu virus has many varieties, many reservoirs (such as swine and fowl) that can exchange it, and a spectacular ability to mutate and baffle human immune defenses. The last deadly pandemic faced by humankind was the Spanish Flu, which occurred in 1918-1919, comparable to the Black Death in the fourteenth century.

In this study, we will concentrate on pandemic influenza to analyze the threat it poses to contemporary society and to devise the most appropriate responses to address this potentially destructive menace effectively. However, before analyzing the

nature of the threat the flu poses to our society, it is important to understand how disease and parasitism play a pervasive role in life and in history. Viruses have depleted the native populations of entire countries and have posed the basis for dramatic changes in their economic and religious life, affecting the course of history.

Disease has been a concealed companion of every war and until recent time the real demanding killer of war was not war itself but the host of diseases that were the unerring mates of it. Two examples are telling on this subject: during the First World War some 113,000 American soldiers died, 51,000 in battle, 62,000 from disease,¹⁵ and during the Civil War about 600,000 American soldiers died, 207,000 in battle, 392,000 from disease.¹⁶

In the Bible, there are indications of the influence of disease in war.¹⁷ How vulnerable a population could be to a sudden eruption of unfamiliar infection is illustrated by what happened in Athens during the Peloponnesian War in 430-429 B.C. Thucydides has left a detailed clinical description of the epidemic that did so much to demoralize the Athenians and killed off about a quarter of the Athenian land Army.¹⁸ An outbreak of dysentery weakened the Prussian force invading France in 1792 and helped to convince their leaders to turn back after losing the battle of Valmy, thus saving the French Revolution.¹⁹ The conquest of the Aztec Empire was due to the most powerful ally of Hernan Cortez: smallpox!²⁰

When black slaves revolted in Haiti, in the early years of the nineteenth century, to put down the revolt, Napoleon sent over 27,000 French troops (1802). When the French came in contact with the yellow fever virus transmitted by mosquitoes, they fell ill and died from the infection. The huge loss influenced the decision not to risk the even

larger numbers of troops necessary to protect other French territories in the New World and was one of the major considerations leading Napoleon to negotiate the sale of the Louisiana Territory to the United States.²¹ These are a few examples that compel us to see a more complex view of history that takes account of diseases as a component of the life of societies along with their political, social, and economic activities.

The comprehension of the remedies to put in place to cope with the menace carried out by the diseases to a society needs an understanding of the differences between an outbreak of a familiar disease amid an experienced population and the ravages of the same infection on a community lacking acquired immunities. At this point, we need to analyze what role disease and parasitism play in life.

All animals are dependent for their nourishment on other biological elements (vegetables or other animals), and human beings are no exception. At biological levels there is astounding parallel between the visible world of the “macroses”, where some animals feed themselves with others, and the invisible world where microbes feed on other microbes. Microbes are viruses, bacteria, or multi-celled creatures that find a source of food on a host creature and act as microparasites. The successful search for food on the part of one organism can become for its host, a nasty infection or disease.²² Some microparasites provoke acute disease and either kill their host after only a brief period of time, while there are other microparasites that achieve more stable relations with their host, establishing a relationship called symbiosis.

In the world of the “macroses” something similar happens and some animals act as plunderers killing the prey, as wolves or lions do, or act as parasites exploiting the ability to find nourishment within a host. Man is not an exception, and in his history he

has acted as plunderer or parasite. Usually, he acted as a parasite with his similar beings, exploiting the abilities of others to work and producing wealth. The first civilizations were built by rulers, who decided to take part of the harvest for the need of the upper class of the nobles, priests, and soldiers, leaving the people with enough food to sustain the lower classes indefinitely, establishing a social symbiosis.

Like the societies of the “macrobes,” inside the human body, white corpuscles fight and phagocytose enemy microbes responsible for infectious diseases. The microbes that they cannot phagocytose, are able to absorb the nourishment of the human body, behaving, sometimes as a plunderer, killing the host body, or as a parasite living in the host body and leaving him enough nourishment to live together indefinitely in symbiosis.

When the parasite is able to live indefinitely with the host body a sort of equilibrium is found, and in our body there are traces of this kind of equilibrium.

In the intestine exists an abundant intestinal flora, fruit of this equilibrium that is of mutual benefit for the body and for the microbes that act as parasites.

The problems arise when an infesting agent not recognized by the body alters the balanced or calm equilibrium and gives way to unrestrained reactions that can cause the death of the body. This situation is common when the infesting agent achieves a “leap” of species or of “environment.” Every species and every environment have and work in dynamic equilibrium with intertwined and complex relations that allow the system (species and environment) to perform normally.

It is necessary to be aware of this precarious equilibrium to avoid what already happened in the world of the “macrobes” when different civilizations at different stages of development (in disequilibrium) met each other with the annihilation of the weakest.

Our unrelenting quest for resources, along with the tremendous increase in contacts due to the cheap availability of the means of transportation, and the globalized nature of the contemporary world makes the human community particularly prone to the menace of a new devastating plague carried out by an unknown infectious element that sleeps somewhere in the darkness of some far away deposit of natural resources or in the depth of an unexplored forest.²³

The Nature of the Menace

Among the known diseases that can cause a pandemic, of relevance for this study are those that have high contagiousness and an ability to spread among the human population in short time. The most threatening disease with these characteristics is influenza. It is a disease that already has a high genetic unpredictability in the causing virus,²⁴ a high speed of transmissibility, every year appears as a pandemic, and is quite dangerous, claiming every year 36,000 deaths per year in the United States.²⁵

Pandemic flu, or pandemic influenza, is a global outbreak of flu that occurs when a new flu virus appears in people, causes serious illness, and spreads easily from person to person. On average, pandemics occur about every 30 or 40 years²⁶ (the last pandemic occurred in 1968) and the next is conservatively expected to cause between 2 and 8 million deaths.²⁷

The Institute of Medicine (IOM) has noted three essential prerequisites for an influenza pandemic:

- (1) The identification of a novel viral subtype in animal populations such as swine or poultry, (2) viral replication causing disease in humans, and (3) efficient human-to-human transmission. The species “jump” from animals to humans could occur through a process known as “reassortment.” If a person is exposed to both animal and human viral infections, “the genetic mixing” could lead to a strain that is

transmissible from human to human, sometimes in ways that are highly resistant to vaccination or antiviral treatment.²⁸

The flu virus has many varieties and many biological reservoirs (such as swine and birds) that allow it to mutate and evolve in order to baffle the human defenses and to generate trouble.²⁹ Because influenza is not considered eradicable,³⁰ the faster we change the environment around us, the faster we force the evolution of the viruses that find niches in the animals that surround us, and the faster new types of infections will reach us.

The outburst of a pandemic with high lethality is a menace not only to public health, but for the system itself, demanding strategies to:

- Prevent and control transmission in birds and other animals;
- Put in place state and local preparation measures;
- Devise biomedical measures to prevent and control the pandemic;
- Manage legal issues in pandemic prevention and control;
- Address the need for integration and communication across various fields of medicine;
- Coordinate public and private sectors;
- Carry out military policies to properly address mass mobilization and area control.³¹

The SARS, severe acute respiratory syndrome, epidemic of 2003 has been the first harbinger of future events that might be catastrophic for the global system as we know it today. SARS has been successfully addressed, for now, but continues to be a future pandemic menace. It was a menace of global magnitude that demonstrated that effective surveillance and a prompt, appropriate response are critical to containing an

outbreak.³² Effective surveillance and appropriate responses could raise questions about the role of national sovereignty in an increasingly interconnected world and could call on all the energy of the World Health Organization, the international scientific community, and the civilian and military authorities as well.

The Role of the Armed Forces

Illness, death, lost of sources of revenues, disrupted commerce, social unrest, and widespread complaints are the consequences of a pandemic.

Politics needs to keep time with the biological development of the disease. Selfishness, reticence, and economic miscalculations, until now, have created obstacles in fighting emerging diseases, and have dampened the efforts put in place by dedicated organizations to fight them. The nature of the threat is so awesome that it is necessary to be ready to fight the incoming pandemic with rigorous scientific approach, and *the leveraging of all instruments of national power*³³ including the Armed Forces.

An epidemic exerts immense political and social pressure for swift, decisive, visible response. When this response is perceived as insufficient, the public can react with rage, without regard to the negative effects of the government's wrong or misguided actions. A sense of rage can easily take the form of stigma toward individuals, ethnic minorities, places, etc. This problem needs to be addressed at the very beginning, first with police resources but if it reaches overwhelming proportions, then, to the Armed Forces. Officials have an obligation to take steps to mitigate the suffering consequent to stigmatization, being aware of the irrationality that underlies the behavior of human beings, and of the inequity of ethnic stereotyping. The army is the best national resource to discourage hate crimes, prevent the stigmatization of specific

people or places as “contaminated” or unhealthy, bolster the ability of individuals and the large community to rebound from unpredictable and traumatic events; and provide food and materials to those who need it.

The Armed Forces, and the Army in particular, are exercised to act in very difficult situations, and their self-sufficient, trustworthy nature as an organization are precious characteristics that are vital in such a situation, where maintaining essential functions and services is critical.

Along with the legal measures to put in place to face nearly every facet of pandemic preparedness, it is necessary to be prepared to use the army in duties that can be expected to reduce the risk of animal-to-human transmission of disease; to prevent or control the spread of infection; to impose voluntary or mandatory quarantine and/or isolation measures, travel limitations, trade restrictions, border closures, and surveillance/detection activities (when necessary).

Each of these interventions, while potentially beneficial to the society, also imposes a burden on at least some of its members in the form of economic disadvantage, loss of political power, or sacrifice of human rights. To render these burdens more bearable to the people, it is necessary that these activities should be performed by a trusted and fair organization such as the Army.

Moreover, if these measures are to be effective, they should be imposed early in the course of a pandemic, before it can be scientifically ascertained whether they are actually warranted.³⁴ Local police and public health laws are not sufficiently robust to meet this daunting challenge.

Pandemic preparations can be viewed as an insurance policy, an investment accumulated over time, in anticipation of an eventual crisis. Conducting planning and preparedness exercises to strengthen the response to a broad range of possible public health emergencies, should involve the military along with the local and state institutions.

The occurrence of an epidemic of epizootic foot-and-mouth disease (FMD) (*Aphtae epizooticae*) in United Kingdom in 2001 was a first glimpse of things to come. Only with the use of the Royal Army, was the United Kingdom able to cope with the spread of this disease, and with a well devised plan of containment, control and destruction of the affected animals carried out by the Army, the United Kingdom was able to succeed in defeating a disease that was bound to destroy the entire cow stocks of the country.

As in the United Kingdom case, control of animal population is critical. When pandemic influenza begins, a critical early strategy is to try and control animal populations and to try and limit the disease's ability to "jump" species. A lot of the biological mixing that occurs with the flu occurs with the cohabitation of pigs and/or birds and humans (this is common not only in China and in many Southeastern Asian countries but in other countries as Indonesia, West Africa and North West Pakistan).³⁵ There is a lot of avian spread of respiratory disease: first transmitted by migrating wild birds between each other and then to large domesticated poultry farm populations by wild birds and then between the many, many birds (chickens and turkeys) in large poultry farms. To diminish the risk it will be necessary to separate animals from humans through infection control and disinfection, and to manage deceased and exposed

animals. This is a critical factor not only for the directly affected countries but is also important for every country as well, in order to prevent world-wide spread of the disease. Even in the United States with its robust Public Health agencies and its trusted Department of Agriculture, this issue is very difficult to be sorted out.³⁶ The numbers of animals to control can be staggering and impossible to deal for every civilian organization and it is likely that the Army will be employed to:

- eliminate large numbers of exposed animals;
- provide burial or elimination of the bodies of the suppressed animals;
- put in place aggressive policies of culling those animals who may have been infected;
- and assure control of geographical areas affected by the disease.³⁷

This is just an example of the employment of the Armed Forces. The needs of homeland security require extraordinary efforts for rapid-reaction forces to be ready for emergency response. Even if a strategy for pandemic influenza already exists, it is critical to analyze what could be key contributions of the military.

The U.S. National Strategy for pandemic influenza is based on three pillars: preparedness and communication, surveillance and detection, response and containment.³⁸ In each of these camps the military can offer their invaluable contribution.

Preparedness and Communication. In the field of preparedness, the military can offer their contribution developing efficient mechanisms for mobilization and fast transfers of resources (human and equipment) into municipalities where they are needed and assuring the fast delivering of reserve resources to jeopardized areas. In a

scenario built on the possible impact of a pandemic, the public would react with a widespread sense of vulnerability, social hysteria, and social disruption causing panic mass migrations using cars to move away from the affected area with the likely result of complete traffic gridlock in busy city streets or major arterial highways. In this situation the only way to reach the people in the affected area would be by air and the railway. Helicopters could intervene efficiently, but their limited load capacity will have difficulty with the large amount of materials and medicines needed. The railway is a better way to deliver large amounts of materials at low cost. Preparing some military units to manage and to deal with the railways are critical tasks to accomplish in order to be prepared in the occurrence of a pandemic. The railway net is widespread enough to reach every corner of the country and has a big potential to funnel whatever is needed in an affected area. In addition, some train convoys can be easily transformed as “mobile hospitals” in order to give specialized care to the needy.

Management of Risk Communication and Health Information dissemination must be seen as critical factors to accomplish in order to avoid social hysteria and public irrationality or overreaction. The official communication, normally, comes out as a trickle and is outpaced by the media information with little interest in sorting “noise” from critical information.³⁹ An effective system of public communication, reliable in the flow of information and with regularly scheduled updates could be put easily in place by military specialized units utilizing dedicated TV and radio channels, as well as high-tech outreach such as the internet, to broadcast reliable and up-to-date information. The ultimate aim is to create an informed and involved public able to help solve the problem

and at ease with its political and community leaders. To reach mutual confidence is the basis for any effective action to cope effectively with the disease.

Surveillance and Detection. Constant monitoring of the “hot spots” where a new virus can develop, detailed testing and screening, fever monitoring, reporting and monitoring trends for a large population are responsibilities carried out by the World Health Organization (WHO) and the US military, with its invaluable contribution through the US Military Influenza Surveillance Network that includes sites outside the United States.⁴⁰ The US Army Center for Health Promotion and Preventive Medicine (USACHPPM), the US Center for Disease Control, and State Public Health Departments all have good surveillance systems with good synchronizations with each other.⁴¹ Nevertheless, it is necessary to expand virologic and disease surveillance in order to close gaps in the current geographical coverage for early warning of the emergence of variants and animal strains with pandemic potential. Better integration of human and animal influenza surveillance is essential for understanding and preparing for threats to human health posed by animal influenza viruses.⁴²

Response and Containment. The best response to a pandemic influenza is vaccination. In order to avoid the collapse of the existing medical infrastructures, a mass campaign of vaccination using mobile centers of vaccinations could be managed by military. The military will be involved to deal with unrest among the population striving to get vaccination, and to maintain good order and discipline for the people waiting for their turn. Customized railway trains can be used as hubs from which these mobile centers can radiate.

To prevent the spread of infection across borders, restrictions and controls will be enforced on the people and merchandise entering back and forth between borders. The sheer large numbers of people and merchandise to control will require the employment of the Army in activities of police control to be performed along with the existing agencies at present in charge of these kinds of activities.

The potential for a mass outbreak of disease raises the specter of civil confinement to separate those who are infected from those who are healthy and could require mandatory measures to be accomplished only through the use of military force. Furthermore, it may be necessary to quarantine a geographic area, a task needing to be accomplished with exclusive recourse to military force. In case of civil confinement, the problem to provide the necessities of life such as safe food, water, and medicine arises. This problem can be addressed by establishing "logistic pipelines" big enough to satisfy the population's needs. Once again, the railway is a critical infrastructure that can efficiently address all the necessary needs.

The challenges of a pandemic are so daunting that the employment of the Armed Forces will be required since the first stage of its occurrence could cause the civilian authorities to be overwhelmed. It happened in the past in the occurrence of painful disasters such as 9/11 and Hurricane Katrina. These situations call for a temporary exception to the caveats of the Posse Comitatus Act, the 130-year-old federal law restricting the military's role in domestic law enforcement. Furthermore, the fact that terrorist organizations can resort to the use of dangerous pathogens able to generate a pandemic underlies the necessity to be ready to deploy the troops on behalf of

homeland security and to prepare the military force for multiple, simultaneous mass casualty incidents.⁴³

All plans are, more or less, worthless when the time comes to apply them because all plans cannot properly foretell specific and unexpected exigencies that always seem to occur. What it is important is not any one specific plan, but that all the responsible agencies are able to communicate and get to know each other and become familiar with each other's capabilities so that the team can train and exercise synergistically together. The exercises will make the organizations, and the people inside them, aware of the potential difficulties in applying the plan and will force them to find solutions to overcome all the shortcomings.⁴⁴

Drawing smart plans is important, but it is not sufficient. Training is what *is* really important. The military needs to be aware of the indispensable role they will be called on to perform in the occurrence of a pandemic, and the Armed Forces need to train units for this specific task along with the other actors of the different departments involved. What it is requested is a truly civilian-military interagency effort to be carried out on behalf of the entire society. Pandemic simulation exercises should be developed for civilian and military planners, and in the course of running the simulations, the civilian and military players should trade places.⁴⁵

Conclusion

In today's information-saturated environment, outburst of a disease in a remote area that has little Public Health or Epidemiological support can easily become a problem for more distant and advanced 1st-world countries and can cause panic due to sensationalized media headlines. Public panic and loss of confidence in public safety

can lead to population demands that are not helpful, with no real practical basis for the demands, but which could then overwhelm Healthcare and Public Works Systems. Furthermore, a deadly pathogen nurtured in geographically distant places can be quickly transported to our industrialized countries and can spring a new disease, with pandemic characteristics, with sudden urgency and devastating Public Health consequences.

In both cases, every effort should be put in place in order to assure the public that every element of power (included the military) is committed to protect the society. The military, as the ultimate bulwark between order and chaos is able to face this new kind of menace, and with its unparalleled logistic capabilities and case management capacity, can properly assure order and discipline, efficient delivery of goods and medicines, control the stream of infected people, and maintain open vital communication's routes. The Armed Forces are already involved with their laboratory and epidemiological expertise in an effective surveillance effort for new influenza viruses and their associated morbidity and mortality.⁴⁶ This is not enough, to be prepared for the next pandemic, it will be necessary to commit all national resources available with the same intent with which the human society has been involved to fight the macroparasitism of the man-on--man (armies, international organizations, and all the structures built to lessen the international violence). We must be aware that an invisible enemy is somewhere in the world and it is developing to start a disruptive attack, perhaps the most disruptive that humankind has ever faced.

The military is ready to give its invaluable contribution in order to mitigate suffering, give help, and reassure people. Its units can deliver adequate human and

material capabilities to cope with the threat, serving the country in silence and with professionalism. Even if a natural-occurring threat of pandemic does not occur in the “The Spectrum of Conflict,” the Armed Forces must become involved and should be made ready to succeed with planning and training now. It is necessary to move from a framework to an action plan, taking advantage of bio-terrorism planning and to address all the issues related to this new fruit of the volatile, uncertain, complex, and ambiguous modern environment.

Endnotes

¹ *The Catholic Study Bible* (New York: Oxford University Press, 1990), 10.

² Laurie Garrett, *Coming Plague* (New York: Penguin Books, 1994), 6.

³ Ibid.

⁴ The first significant attempt to quantify the death toll came in 1927. An American Medical Association sponsored study estimated that 21 million died. When today's media refers to a death toll of “more than 20 million” the source is this study. But every revision of the deaths since 1927 has been upward. The U.S. death toll was originally put at 550,000. Now epidemiologists have settled on 675,000 out of a population of 105 million. Worldwide, both the estimated toll and the population have gone up by a far greater percentage. In the 1940s Macfarlane Burnet, the Nobel laureate who spent most of his scientific life studying influenza, estimated the death toll at 50 to 100 million. John M. Barry, *The Great Influenza* (New York: Penguin Books, 2004), 396-397.

⁵ Peter Simkins, Geoffrey Jukes, & Michael Hickey, *The First World War. The War to End all Wars* (Osceola, WI: Osprey, 2003), 337.

⁶ Geoffrey Till, “New directions in Maritime strategy?,” in *Readings in the Theory of War and Strategy* (Carlisle Barracks, PA: U.S. Army War College, Department of National Security and Strategy, 2008 vol.II), 107.

⁷ Rob DeSalle, “Epidemics and Pandemics” in *Epidemic! The World of Infectious Disease*, ed. Rob DeSalle (New York: The New Press, 1999), 153.

⁸ Rob DeSalle, “Epidemics and Pandemics” in *Epidemic! The World of Infectious Disease*, 154.

⁹ Voice “Pandemic” in *Webster NewWorld Dictionary*, Third College Edition (New York: MacMillian, 1994), 975.

¹⁰“WHO Consultation on Priority Public Health Interventions Before and During Influenza Pandemic. Executive Summary” in *Epidemic! The World of Infectious Disease*, ed. Rob DeSalle (New York: The New Press, 1999), 145.

¹¹ Voice “Epidemic” in *Webster’s New Explorer Encyclopedic Dictionary* (Springfield, MA: Federal Press Street, 2006), 611.

¹² Voice “Endemic” in *Black’s Medical Dictionary*, 41st Edition (London, UK: A & C Black Publishers Limited, 2005), 233.

¹³ Arno Karlen, *Man and Microbes* (New York: Touchstone, 1996), 17.

¹⁴ Arno Karlen, *Man and Microbes*, 11.

¹⁵ Voice “World War I” in *The Oxford Companion to United States History* (New York: Oxford University Press, 2001), 845.

¹⁶ Allan R. Millett & Peter Maslowski, *For the Common Defense* (New York: The Free Press, 1994), 238.

¹⁷ 2 Kings 19, 32-35: ³² ‘Therefore, thus says the Lord concerning the king of Assyria: He shall not reach this city, nor shoot an arrow at it, nor come before it with a shield, nor cast up a siege-works against it.’ ³³ He shall return by the same way he came, without entering the city, says the Lord. ³⁴ I will shield and save this city for my own sake and for the sake of my servant David.’ ³⁵ That night the angel of the Lord went forth and struck down one hundred and eighty-five thousand in the Assyrian camp. Early the next morning there they were, all the corpses of the dead. *The Catholic Study Bible*, 400.

¹⁸ William H. McNeill, *Plagues and Peoples* (New York: Anchor Press, 1976), 105.

¹⁹ William H. McNeill, “Infectious Alternatives” in, *What if?: The World’s Foremost Military Historians imagine What Might Have Been*, ed. Robert Cowley (New York: Berkeley Books, 2000), 2.

²⁰ William H. McNeill, *Plagues and People* (New York: Anchor Press, 1976), 2.

²¹ Michael B.A. Oldstone, *Viruses, Plagues, & History* (New York: Oxford University Press, 1998), 5.

²² William H. McNeill, *Plagues and Peoples*, 6.

²³ Rising food prices are pushing people, unable to afford basic supplies, especially communities in Central Africa, to turn to the forests for food. In doing so, hunters expose themselves to hidden dangers-microscopic pathogens living in the blood of forest animals. Most of the viruses are harmless, but some are potentially deadly when passed to humans. Scientists point out there is nothing new about these viruses. What is new is the frequency of people's contact with them and how easily they can now be spread around the world. “Tracking deadly viruses' spread from animals to humans,” in CNN.com/world <http://www.cnn.com/2008/WORLD/africa/12/08/pip.zoonotics/index.html?iref> (accessed Dec. 10, 2008).

²⁴ A virus (from the Latin virus meaning toxin or poison) is a sub-microscopic infectious agent that is unable to grow or reproduce outside a host cell. Viruses infect all cellular life. It is about 100 times smaller than bacteria (unicellular microorganisms). The term is applied to a group of infective agents which are so small that they are able to pass through the pores of collodion filters. Voice "Virus" in *Black's Medical Dictionary*, 763.

²⁵ Influenza (Flu) Prevention, USACHPPM (US Army Center for Health Promotion and Preventive Medicine), <http://chppm-www.apgea.army.mil/news/influenzaWebsite/index.htm> (accessed October 5, 2008).

²⁶ *Ibid.*

²⁷ *The Threat of Pandemic Influenza*, Workshop Summary prepared for Forum on Microbial Threats Board on Global Health, ed. Stacey L. Knobler, Alison Mack, Adel Mahmoud, and Stanley M. Lemon (Washington, D.C.: National Academies Press, 2005), xii.

²⁸ Lawrence O. Gostin, "Public Health Preparedness and Ethical Values in Pandemic Influenza" in *The Threat of Pandemic Influenza*, 358.

²⁹ Arno Karlen, *Man and Microbes* (New York: Touchstone Book, 1996), 8.

³⁰ *The Threat of Pandemic Influenza*, 30.

³¹ *Ibid.*, xii.

³² Joel C. Gaydos, "Rapporteur's Challenge" in *Strengthening Influenza Pandemic Preparedness through Civil-Military Cooperation*, ed. J. Neville and O.I. Kisilev (Fairfax, VA: IOS Press, 2005), vii.

³³ *National Strategy for Pandemic Influenza* (Washington, D.C.: Homeland Security Council, 2005), 2.

³⁴ *The Threat of Pandemic Influenza*, 46.

³⁵ Interview on the 16th December 2008 with Jose L. Sanchez, Influenza Team Leader, of the Armed Forces Health Surveillance Center.

³⁶ Interview on the 16th December 2008 with Joel C. Gaydos, Military Health System Coordinator for Emerging Disease Programs, and Jose L. Sanchez, Influenza Team Leader, of the Armed Forces Health Surveillance Center.

³⁷ Lawrence O. Gostin, "Public Health Preparedness and Ethical Values in Pandemic Influenza" in *The Threat of Pandemic Influenza*, Workshop Summary prepared for Forum on Microbial Threats Board on Global Health, 357-368.

³⁸ *National Strategy for Pandemic Influenza*, 3.

³⁹ Monica Schoch-Spana, "Strategies to Remedy Panic in a Pandemic: Lessons from Biodefense" in *The Threat of Pandemic Influenza*, Workshop Summary prepared for Forum on Microbial Threats Board on Global Health, 351.

⁴⁰ L.C. Canas and N.J. Cox, “Influenza Surveillance: Civilian-Military Cooperation in the United States and Considerations for Worldwide Improvement” in *Strengthening Influenza Pandemic Preparedness through Civil-Military Cooperation*, 68.

⁴¹ Interview on the 16th December 2008 with Jose L. Sanchez, Influenza Team Leader, of the Armed Forces Health Surveillance Center.

⁴² L.C. Canas and N.J. Cox, “*Influenza Surveillance: Civilian-Military Cooperation in the United States and Considerations for Worldwide Improvement*” in *Strengthening Influenza Pandemic Preparedness through Civil-Military Cooperation*, 70.

⁴³ “Pentagon to Detail Troops to Bolster Domestic Security,” Washington Post, December 1, 2008. <http://ebird.osd.mil/ebfiles/e20081201642701.html> (accessed Dec. 10, 2008).

⁴⁴ Interview on the 16th December 2008 with Joel C. Gaydos, Military Health System Coordinator for Emerging Disease Programs, of the Armed Forces Health Surveillance Center.

⁴⁵ Joel C. Gaydos, “Rapporteur’s Report” in *Strengthening Influenza Pandemic Preparedness through Civil-Military Cooperation*, 106.

⁴⁶ Joel C. Gaydos, “Rapporteur’s Challenge” in *Strengthening Influenza Pandemic Preparedness through Civil-Military Cooperation*, vii.

